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AUTHOR Wax, Anne S.; Dutton, Margaret M.
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ABSTRACT

This study was conducted in 1989 in a suburban school district in Oregon for the purpose of determining the impact of high, medium, and low usage levels of cooperative learning on teacher efficacy. Elementary school teachers in the district were engaged in a staff development training program for teaching cooperative learning in the classroom. This type of learning includes helping, communicating, encouraging, teaming and supporting, with the teacher acting as model. Elementary classroom teachers (N=129, a 71% response rate) responded to a questionnaire which gathered information about an independent variable, the amount of classroom time spent in cooperative learning situations within a week's time, and its effects on teacher efficacy. Results indicated that teachers using the highest level of cooperative learning experienced the highest levels of efficacy, power, confidence in working with students, and willingness to innovate. Since this study is exploratory, suggestions are made for further investigation through experimental designs. The survey form is appended. (LL)

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The Relationship Between Teacher Use of Cooperative Learning and Teacher Efficacy

Anne S. Wax

Tigard-Tualatin School District, Tigard, Oregon

Margaret M. Dutton

North Marion School District, Aurora, Oregon

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The Relationship Between Teacher Youth of Cooperative Learning and Teacher Efficacy

Objectives of the Study

The purpose of the study was to investigate the effect of different levels of classroom use of cooperative learning on teacher efficacy in general, as well as on specific aspects of teacher efficacy. These specific aspects included sense of power in the teaching role, confidence in working with students, and willingness to innovate.

Perspectives

Efficacy is an individual's feeling of power to produce effects. In teaching, efficacy refers to the teacher's expectation that he or she can help students learn. Ashton and Webb (1986) have separated this expectation into two dimensions: sense of teaching efficacy and sense of personal teaching efficacy. They described sense of teaching efficacy as the belief that the act of teaching can actually influence student learning, that teaching will bring about student learning. Personal teaching efficacy is the teacher's perception of his or her own competence in bringing about student learning. Teachers vary in their belief that they are able to and will actually influence student learning (Brophy & Evertson, 1976). Teachers who have a low sense of teaching efficacy think that some students just can't or won't learn in school and there is nothing that can be done about it by anyone. Others, who have a

high sense of teaching efficacy, believe that all students can learn. Teachers who have a high sense of personal teaching efficacy believe that they are capable of bringing about student learning. Teachers who feel discouraged at their ability to cause student learning, but believe that students can learn have a low sense of personal teaching efficacy (Ashton & Webb, 1986). An absence of personal efficacy on the part of teachers results in alienation, withdrawal, high absenteeism, and the "ultimate manifestation of withheld services, disengaged teachers" (Rosenholtz, 1985, p. 357).

A strong sense of efficacy enables teachers not just to survive and endure, but to prevail and flourish in their efforts with students. McDermott (1977) has stated that a trusting relationship between students and teacher is an essential for effective instruction. McDermott describes the relationship:

> I am talking about trust as a quality of the relations among people, as a product of the work they do to achieve a shared focus. Trust is achieved and managed through interaction . . . . It takes constant effort for two or more people to achieve trusting relations . . . . (p. 199)

Because the trust relationship is so necessary for student learning, and because teacher efficacy is the sense of being able to bring about student learning, the teacher's ability to maintain the trust relationship will be an important factor in his or her sense of efficacy (Ashton, 1984). Ashton found that

teachers with high efficacy had more positive and accepting relationships with students. She also reported in 1986 that teachers with a high sense of efficacy "seemed to employ a pattern of strategies that minimized negative affect, promoted an expectation of achievement, and . . . . a classroom situation characterized by warm interpersonal relationships" (p. 125).

It is not surprising that efficacy has been identified as the teacher characteristic with the most consistent relationship to student achievement (Ashton, 1984). The cycle of expectation effects described by Brophy (1983) and the extensive research in this area support the view that teacher expectations affect student achievement (Cooper & Good, 1983). It is appropriate therefore to expect that staff development programs contribute to and sustain teacher efficacy.

A major staff development thrust in the last decade has been the implementation of cooperative learning in the classroom. Cooperative learning includes a large repertoire of affective dimensions such as helping, communicating, encouraging, teaming and supporting. Teachers model for and teach students the behaviors associated with these dimensions. For example, teachers using cooperative learning teach students socialization skills which foster their ability to listen to one another, to reach agreement, and to offer encouragement and praise. These skills are taught in lessons structured to promote positive interdependence, as well as individual accountability, toward a

shared goal (Johnson, Johnson, Holubec, & Roy, 1984). Thus the teacher who uses cooperative learning is teaching the skills closely associated with the elements McDermott (1977) identifies as highlights of trust. Furthermore, there is a strong emphasis on heterogeneous grouping of students during cooperative learning (Kagan, 1985). The implication for students is that all students can use the socialization skills to communicate and work together effectively. Again, in McDermott's words, ". . . Trust is not a property of persons but a product of the work people do to achieve trusting relations . . ." (p. 199). It appears that while using cooperative learning in the classroom, the teacher is teaching the very skills that will enhance his or her own trust relationship with students, as well as the trust among the students. It follows then, that the teacher's sense of teaching efficacy should be strengthened.

In addition to the impact of the affective aspects of the learning situation, cooperative learning has also been shown to raise student achievement and productivity. Johnson and Johnson (1989) have provided an extensive summary of this research. They state that, on the average, students who were working in a cooperative situation performed at about .6 standard deviation above the average student working in a competitive or individualistic situation. The teacher who observes increased student learning in his or her classroom should experience increased teaching efficacy.

Because both teacher efficacy and cooperative learning have been shown to affect students achievement, we wanted to investigate the effect of use of cooperative learning on teacher efficacy. We were interested in its effect on teacher efficacy in general, as well as on specific aspects of teacher efficacy which included sense of power in the teaching role, confidence in working with students, and willingness to innovate.

Method

The study was conducted in May of 1989 in a suburban school district in Oregon. The district has a ten year history of a quality staff development program, which began with training in instructional decision making using the work of Madeline Hunter. All teachers who join the district are strongly encouraged to take this class, so that when this study was done, 96% of the participants had had "ITIP." Other aspects of this staff development program include classes in classroom management, and teaching thinking skills, as well as a Beginning Teacher Program. The district also requires that anyone wishing to supervise a student teacher must first take clinical supervision. The model for all staff development classes includes theory, rationale, demonstration, discussion, and observation/feedback on classroom performance during and after the course.

Cooperative learning is the second district-wide emphasis in the staff development in this district. When this study took place, the first phase of training in cooperative learning was

well underway, but not yet completed, in all of the elementary schools. In the previous school year, staff development personnel had begun providing training for school faculties at the school sites. This training covered a period of 10 weeks and included presentation of theory and rationale, critical elements, and structures. Each class was taught by means of the elements and structures that were to be learned, and included demonstrations, discussion, and problem-solving. Each teacher was observed by a staff developer at least twice doing a cooperative lesson in his or her own classroom. The observation was followed by a conference during which the teacher and the staff developer jointly analyzed the strengths and weaknesses of the lesson, using the five elements of cooperative learning and the particular structure as the criteria.

In addition to this training program, there were other opportunities for teachers to learn about and develop skills in using cooperative learning. Some attended district-wide classes, which followed the same model, but were open to all teachers, regardless of the school to which they were assigned. Professional development money was also available for teachers to attend local conferences and workshops outside the school district.

Therefore, this district provided an opportunity to study a large sample of teachers with varying amounts and kinds of training in the area of cooperative learning. The research was

conducted via questionnaire with 129 teachers responding, a response rate of 71%. All respondents were elementary classroom teachers.

The questionnaire gathered information about the independent variable, the amount of classroom use of cooperative learning within a week. Teachers were asked to respond to the following question:

> In how many lessons per week, on the average, do you use cooperative learning with your students?
>
> A. none
> B. 1-3 lessons per week
> C. 4-6 lessons per week
> D. 7-9 lessons per week
> E. in 10 or more lessons per week

For analysis, these data were collapsed to three levels of use:

1. low (0 to 3 lessons per week)
2. moderate (4 to 6 lessons per week)
3. high (7 or more lessons per week).

In addition, the questionnaire contained 15 items on teacher efficacy, nearly all of which focused on personal teaching efficacy, as described by Ashton and Webb (1986). These efficacy items had three subsets: power in the role of teacher, confidence in working with students, and willingness to innovate. Each subset contained five items.

Power in the Role of Teacher

1. How influential do you feel as part of your school staff?

2. As a teacher, do you feel you are a powerful force in helping students learn and succeed at school?

3. Do you feel you have power in your role as a teacher and can really make a difference with your students?

4. How much help do you feel you are able to give students in learning how to learn?

5. How do you feel about this statement: The influence of a student's home experiences can be overcome by good teaching.

Confidence in Working with Students

1. Estimate how many students in your class really have a sense of belonging, of feeling included by other students.

2. How successful are you in meeting academic needs of your students?

3. Are you able to maintain a positive learning climate for your students?

4. How successful are you in teaching your students the skills they need for working together?

5. How well does your classroom prepare students to help and encourage each other to succeed?

Willingness to Innovate

1. How often do you design your own instructional methods and teach your students more or less as you choose?

2. How willing are you to attempt changes and innovations in your teaching?

3. How motivated do you feel to grow professionally and use information from staff development training?

4. Recall a recent situation in which a student had trouble learning. How many techniques did you try in order to "get through" to him or her?

5. How do you feel about this statement: Staff development for teachers is a powerful influence on student achievement when all other factors are considered.

Each item had five possible choices on a scale of 5 through 1 (see Appendix A). The instrument was scored so that the response indicating greatest sense of efficacy received a 5; the next highest, a 4, etc. Four scores were calculated:

1. The mean score on all 15 efficacy questions.

2. The mean score on the subscale of power in the role of teacher.

3. The mean score on the subscale of confidence in working with students.

4. The mean score on the subscale of willingness to innovate.

ANOVA was performed to determine the effect of different levels of classroom use (low, moderate, or high) of cooperative learning on teacher efficacy in general and also on each of the separate aspects of teacher efficacy. Scheffé and the Fisher PLSD tests were used to see in which pairs of means there were significant differences. All analysis was performed on Macintosh computers,

using Statview 512+ v 1.2 from BrainPower, Inc. of Calabasas, California.

Results and Conclusions

Amount of Use and Efficacy

Teachers in the high use group, reported higher efficacy than teachers in the moderate and low use groups. Table 1 presents the findings.

Table 1

Level of Use of Cooperative Learning and Efficacy

Lessons per Week	Level of Use	N	Efficacy	
			Mean	SD
(1) 0-3	Low	54	4.240	0.256
(2) 4-6	Moderate	31	4.280	0.268
(3) 7+	High	20	4.500	0.264

An analysis of variance, with level of use as the independent variable and the efficacy score as the dependent variable was performed. A significant difference existed between at least two of the groups, $p < .01$. Table 2 provides this analysis.

Further analysis using both the Scheffé and the Fisher PLSD tests was conducted to see which pairs of means differed significantly, with alpha set at .05. A significant difference was found between the high use and the low use groups and also

between the high and the moderate use groups, as shown in Table 3.

Table 2

ANOVA for Level of Use and Efficacy

Variable	Source of Variation	Sum of Squares	DF	Mean Square	F
Amount of use	Between	0.97	2	0.484	7.094*
	Within	6.96	102	0.068	
	Total	7.92	104		

*p < .01

Table 3

Scheffé F-test and Fisher PLSD for Amount of Use and Efficacy

Group	Comparison of Lessons per Week	Scheffé F-test	Fisher PLSD
Low-Moderate	0-3 vs 4-6	0.215	0.117
Low-High	0-3 vs 7+	6.947*	0.136*
High-Moderate	4-6 vs 7+	4.166*	0.149*

*p < .01

Thus, teachers who used cooperative learning seven or more times per week showed higher efficacy than teachers who used it less often. In a causal comparative study such as this, we cannot conclude that the higher use of the cooperative learning caused the higher sense of efficacy. Sparks (1988) has pointed out that teachers who have stronger self-efficacy are more likely

to have the confidence to take risks and to experiment. Thus, it may be that it was the teachers who already had higher efficacy who were willing to implement cooperative learning more extensively.

Amount of Use and Power in the Role of Teacher

The mean scores on the power subscale were compared for the low, moderate, and high use groups. Teachers who used cooperative learning seven or more times per week reported a higher feeling of power in the role of the teacher than those with a low or moderate level of use (see Table 4).

Table 4

Level of Use of Cooperative Learning and Power in Role of Teacher

Lessons per Week	Level of Use	N	Power in Role of Teacher	
			Mean	SD
(1) 0-3	Low	54	4.084	0.055
(2) 4-6	Moderate	31	4.084	0.069
(3) 7+	High	20	4.300	0.100

An analysis of variance, with level of use as the independent variable and the power score as the dependent variable was performed, as shown in Table 5.

Further analysis using both the Scheffé and the Fisher PLSD tests were conducted to see if any pairs of means differed significantly, with alpha set at .05. A significant difference

was found between the low use and the high use groups, as shown in Table 6.

Table 5

ANOVA for Level of Use and Power

Variable	Source of Variation	Sum of Squares	DF	Mean Square	F
Amount of use	Between	0.755	2	0.377	2.27
	Within	16.951	102	0.166	
	Total	17.706	104		

Table 6

Scheffé F-test and Fisher PLSD for Amount of Use and Power

Group	Comparison of Lessons per Week	Scheffé F-test	Fisher PLSD
Low-Moderate	0-3 vs 4-6	8.934	0.182
Low-High	0-3 vs 7+	2.044	0.212*
High-Moderate	4-6 vs 7+	1.709	0.232

*p < .05

Thus, teachers who used cooperative learning seven or more times power week (high use) indicated a greater sense of power in their role as teacher than those who used cooperative learning zero to three times per week (low use). A closer look at a classroom in which cooperative learning is being used can offer a possible explanation for these results. A large part of cooperative learning involves teaching the very processes that will improve

student behavior and ease the difficulty of classroom control. Teachers teach the specific social skills that students need to use, i.e., listening, taking turns, sharing, and showing appreciation. Instruction in these skills is often direct and includes both the discussion of the critical attributes of each skill and the modeling of it. In addition, the cooperative groups are held accountable for using the social skills. As a part of the lesson, the teacher may provide feedback to them. Furthermore, group members will discuss with each other the effectiveness of their use of the skills, introducing the element of peer pressure for successful use of good social skills.

In addition, the responses to each of the five individual items on the power subscale were studied. Significant differences at alpha = .05 were found on the following item:

> How do you feel about this statement: The influence of a student's home experiences can be overcome by good teaching.
>
> A. Strongly agree
> B. Probably agree
> C. Half agree, half disagree
> D. Probably disagree
> E. Strongly disagree.

Teachers with high use of cooperative learning were stronger in their agreement with this statement than teachers in the moderate and low use groups, as shown in Table 7.

An analysis of variance, with level of use as the independent variable and the score on agreement with the statement as the dependent variable was performed, indicating

that a significant difference existed between at least two of the groups, $p < .01$. Table 8 provides this analysis.

Table 7

Level of Use and Agreement with Statement "Influence of Home can be Overcome by Good Teaching"

Lessons per Week	Level of Use	N	Power in Role of Teacher: Influence of Home can be Overcome by Good Teaching	
			Mean	SD
(1) 0-3	Low	53	3.057	0.949
(2) 4-6	Moderate	31	3.161	0.688
(3) 7+	High	20	3.900	1.119

Table 8

ANOVA for Level of Use and Agreement with Statement "Influence of Home can be Overcome by Good Teaching"

Variable	Source of Variation	Sum of Squares	DF	Mean Square	F
Amount of use	Between	10.676	2	5.338	6.356*
	Within	84.824	101	0.840	
	Total	95.500	103		

*$p < .01$

Further analysis using both the Scheffé and the Fisher PLSD tests were conducted to see which pairs of means differed significantly, with alpha set at .05. A significant difference was found between the high use group and the moderate use group,

as well as the low use group, as shown in Table 9. Any analysis of cooperative learning points out the importance of positive interdependence among members of the group. The procedures and processes, as well as the tasks and/or rewards are structured so that the group experiences success only when all its individuals are successful. The teacher who uses cooperative learning employs teaching behaviors which engineer success and are based on the expectation of success for all students, regardless of their home environment, socio-economic status, or ability level.

Table 9

Scheffé and Fisher PLSD for Level of Use and Agreement with Statement "Influence of Home can be Overcome by Good"

Group	Comparison of Lessons per Week	Scheffé F-test	Fisher PLSD
Low-Moderate	0-3 vs 4-6	0.128	0.411
Low-High	0-3 vs 7+	6.149*	0.477*
High-Moderate	4-6 vs 7+	3.950*	0.521*

*p < .05

Confidence in Working with Students

As teachers' level of use of cooperative learning increased, so did their confidence in working with students. Table 10 presents the findings.

Table 10

Level of use and Confidence in Working with Students

Lessons per Week	Level of Use	N	Confidence in Working with Students	
			Mean	SD
(1) 0-3	Low	54	4.469	0.283
(2) 4-6	Moderate	31	4.535	0.303
(3) 7+	High	20	4.700	0.287

An analysis of variance, with level of use as the independent variable and the score on confidence in working with students as the dependent variable was performed, indicating that a significant difference existed between at least two of the groups, $p < .01$. Table 11 provides this analysis.

Table 11

ANOVA for Level of Use and Confidence in Working with Students

Variable	Source of Variation	Sum of Squares	DF	Mean Square	F
Amount of use	Between	0.782	2	0.391	4.660*
	Within	8.562	102	0.084	
	Total	9.345	104		

*$p < .05$

Further analysis using both the Scheffé and the Fisher PLSD tests was conducted to see which pairs of means differed significantly, with alpha set at .05. A significant difference was found

between the low use and the high use groups. This is shown in Table 12.

Table 12

Scheffé F-test and Fisher PLSD for Level of Use and Confidence in Working with Students

Group	Comparison of Lessons per Week	Scheffé F-test	Fisher PLSD
Low-Moderate	0-3 vs 4-6	0.526	0.13
Low-High	0-3 vs 7+	4.658*	0.150*
High-Moderate	4-6 vs 7+	1.960	0.165

*p < .05

In addition, the responses to each of the five individual items on the confidence subscale were studied. Significant differences with alpha set at .05 were found on the following two items: How successful are you in teaching your students the skills they need for working together?

A. Successful with all or almost all of the students
B. Successful with more than half of the students
C. Successful with about half of the students
D. Successful with less than half of the students
E. Successful with very few or almost none of the students

How well does your classroom prepare students to help and encourage each other to succeed?

A. Extremely well
B. Very well
C. Moderately well
D. Only fairly well
E. Not well.

Table 13 shows that as the level of use increased, so did the number of students that teachers felt they were successfully teaching to work together.

Table 13

Level of Use and Success in Teaching Students Skills for Working Together

Lessons per Week	Level of Use	N	Confidence in Working with Students: Success in Teaching Students Skills for Working Together	
			Mean	SD
(1) 0-3	Low	53	4.245	0.551
(2) 4-6	Moderate	31	4.452	0.506
(3) 7+	High	20	4.700	0.470

An analysis of variance, with level of use as the independent variable and success in teaching students to work together as the dependent variable was performed, as shown in Table 14.

Table 14

ANOVA for Level of Use and Success in Teaching Students Skills for Working Together

Variable	Source of Variation	Sum of Squares	DF	Mean Square	F
Amount of use	Between	3.148	2	1.574	5.741*
	Within	27.689	101	0.274	
	Total	30.837	103		

*p < .01

Further analysis using both the Scheffé and the Fisher PLSD tests were conducted to see which pairs of means differed significantly, with alpha set at .05. A significant difference was found between the high use group and the low use group, as shown in Table 15.

Table 15

Scheffé F-test and Fisher PLSD for Level of Use and Success in Teaching Students Skills for Working Together

Group	Comparison of Lessons per Week	Scheffé F-test	Fisher PLSD
Low-Moderate	0-3 vs 4-6	1.519	0.235
Low-High	0-3 vs 7+	5.476*	0.273*
High-Moderate	4-6 vs 7+	1.368	0.298

*p < .05

These results were expected because a major emphasis of cooperative learning is teaching students specific skills of cooperation. Positive interdependence is frequently structured into the lessons by having students fulfill designated roles such as "go-fer," recorder, noise monitor, and "gate-keeper." Leadership roles rotate so that students have the opportunity to perform a variety of tasks that are necessary to group success. However, these skills take practice, so it is reasonable that students would be more proficient at them in classrooms where cooperative learning took place more frequently.

Analysis of the other question on the subscale in which significant differences existed between level of use groups shows that teachers in the high use group felt their classrooms prepared students to help and encourage each other to succeed to a greater extent than teachers in the low and moderate use groups. Table 16 summarizes this data.

Table 16

Level of Use and How Well Classroom Prepares Students to Help and Encourage Each Other to Succeed

Lessons per Week	Level of Use	N	Confidence in Working with Students: How Well Your Classroom Prepares Students to Help and Encourage Each Other to Succeed	
			Mean	SD
(1) 0-3	Low	53	4.000	0.519
(2) 4-6	Moderate	31	3.935	0.629
(3) 7+	High	20	4.300	0.733

An analysis of variance, with level of use as the independent variable and how well the classroom prepares students to help and encourage each other to succeed as the dependent variable was performed, indicating that a significant difference existed between at lest two of the groups, $p < .01$, as shown in Table 17.

Table 17

ANOVA for Level of Use and How Well Classroom Prepares Students to Help and Encourage Each Other to Succeed

Variable	Source of Variation	Sum of Squares	DF	Mean Square	F
Amount of use	Between	1.775	2	0.484	5.741*
	Within	36.071	101	0.274	
	Total	37.846	103		

*p < .01

Further analysis using both the Scheffé and the Fisher PLSD tests was conducted to see which pairs of means differed significantly, with alpha set at .05. A significant difference was found between the high use group and the moderate use group. The difference between the high use group and the low use group was not significant. However, inspection of the means shows that the means of the low and the moderate group are virtually the same. Table 18 provides the results of the Scheffé and the Fisher PLSD.

Table 18

Scheffé F-test and Fisher PLSD for "Level of Use and How well Classroom Prepares Students to Help and Encourage Each Other to Succeed"

Group	Comparison of Lessons per Week	Scheffe F-test	Fisher PLSD
Low-Moderate	0-3 vs 4-6	0.114	0.268
Low-High	0-3 vs 7+	1.830	0.311
High-Moderate	4-6 vs 7+	2.261	0.340*

*p < .05

Students who participate in cooperative learning are taught specific skills in giving encouragement and in praising other members of the group. The teacher often will assign a specific role for "encourager" or "praiser," and will then give direct instruction in how to do it, showing what it looks like and sounds like, and then modeling the appropriate behaviors for the students. The teacher may tell the students that he/she will be listening for encouraging and praising comments while walking around the classroom. Frequently, the teacher carries a clipboard, and records examples of student comments to share later with the group or with the entire class. During the time the group is working on the academic task or after the group has finished it, there is usually designated time for students to discuss together how well they encouraged or helped each other. The teacher may also allow time for the groups to report to the whole class on how well they used these particular skills. Sometimes groups keep charts of the social skills they are working on and will decide that they need to concentrate more on encouraging, etc. during their next cooperative learning lesson. With this kind of time being spent on skills of encouragement and helping one another, it is not hard to see why teachers who use cooperative learning more frequently feel that their classroom is preparing students to help and encourage each other to succeed.

Willingness to Innovate

As teachers' level of use of cooperative learning increased, so did their willingness to innovate. Table 19 presents the findings.

Table 19

Level of Use of Cooperative Learning and Willingness to Innovate

Lessons per Week	Level of Use	N	Willingness to Innovate Mean	SD
(1) 0-3	Low	54	4.174	0.433
(2) 4-6	Moderate	31	4.219	0.377
(3) 7+	High	20	4.49	0.279

An analysis of variance, with level of use as the independent variable and the willingness to innovate as the dependent variable was performed, indicating that a significant difference existed between at least two of the groups, $p < .01$ (see Table 20).

Table 20

ANOVA for Level of Use and Willingness to Innovate

Variable	Source of Variation	Sum of Squares	DF	Mean Square	F
Amount of use	Between	1.492	2	0.746	4.844*
	Within	15.705	102	0.154	
	Total	17.197	104		

*$p < .01$

Further analysis using both the Scheffé and the Fisher PLSD tests was conducted to see which paris of means differed significantly, with alpha set at .05. A significant difference was found between the low use and the high use groups and also between the moderate use and the high use groups, as shown in Table 21.

Table 21

Scheffé F-test and Fisher PLSD for Amount of Use and Willingness to Innovate

Group	Comparison of Lessons per Week	Scheffe F-test	Fisher PLSD
Low-Moderate	0-3 vs 4-6	0.131	0.175
Low-High	0-3 vs 7+	4.730*	0.204*
High-Moderate	4-6 vs 7+	2.892*	0.223*

*p < .05

These results were in the expected direction. However, we cannot say that greater use of cooperative learning resulted in greater willingness to innovate or whether those who already were stronger in this characteristic were more willing to use cooperative learning to a greater degree. As Sparks (1988) pointed out, teachers stronger in self-efficacy are more likely to take risks and to experiment. However, in the context of the other results of this study, these findings are important enough to justify further investigation. A major issue in education is getting teachers to employ new strategies (Sirotnik cited in

Bliss, 1989). If the use of cooperative learning seven or more times a week increases a teacher's willingness to innovate, it is important that this be known.

In addition, the responses to each of the five individual items on this subscale were studied. Significant differences with alpha set at .05 were found on the following item:

> How do you feel about this statement: Staff development for teachers is a powerful influence on student achievement, when all factors are considered.
>
> A. Strongly agree
> B. Probably agree
> C. Half agree, half disagree
> D. Probably disagree
> E. Strongly disagree

Table 22 shows the mean level of agreement with the statement for each group.

Table 22

Level of Use and Agreement with Statement "Staff Development for Teachers is a Powerful Influence on Student Achievement when all Other Factors are Considered"

Lessons per Week	Level of Use	Willingness to Innovate: Staff Development for Teachers is a Powerful Influence on Student Achievement when all Other Factors are Considered		
		N	Mean	SD
(1) 0-3	Low	53	3.925	0.874
(2) 4-6	Moderate	31	4.032	0.912
(3) 7+	High	20	4.650	0.587

An analysis of variance, with level of use as the independent variable and the amount of agreement with the statement as the dependent variable was performed, as shown in Table 23.

Table 23

ANOVA for Level of Use and Agreement with the Statement "Staff Development for Teachers is a Powerful Influence on Student Achievement when all Other Factors are Considered"

Variable	Source of Variation	Sum of Squares	DF	Mean Square	F
Amount of use	Between	7.823	2	3.911	5.547*
	Within	71.216	101	0.705	
	Total	79.038	103		

*p < .01

Further analysis using both the Scheffé and the Fisher PLSD tests was conducted to see which pairs of means differed significantly, with alpha set at .05. A significant difference was found between the high use group and the low use group, as well as between the high use group and the moderate use group, as shown in Table 24.

Table 24

Scheffé F-test and Fisher PLSD for Level of Use and Agreement with "Staff Development for Teachers is a Powerful Influence on Student Achievement When all Other Factors are Considered"

Group	Comparison of Lessons per Week	Scheffé F-test	Fisher PLSD
Low-Moderate	0-3 vs 4-6	0.161	0.377
Low-High	0-3 vs 7+	5.419*	0.437*
High-Moderate	4-6 vs 7+	3.290*	0.478*

*p < .05

These results were in the expected direction. However, we cannot say that greater use of cooperative learning resulted in stronger belief in staff development or whether those who already were stronger in this characteristic were more willing to use cooperative learning to a greater degree. However, as in the previous question, these findings are important enough to justify further investigation. A major issue in education is getting teachers to employ new strategies. Guskey (cited in Smylie, 1988) has reported that nearly every major study on the success of staff development has shown that it lacks effectiveness. If the use of cooperative learning seven or more times a week increases a teacher's belief in the staff development function, it is important that this be known.

In summary, teachers who used cooperative learning seven or more times per week were significantly higher in the following areas:

Efficacy

• Teachers in the high use group had higher overall efficacy than those in the moderate or low use groups.

Power

• Teachers in the high use group reported a higher sense of power than those in the low use group.

• Teachers in the high use group agree more strongly that "the influence of home can be overcome by good teaching" than teachers in the low use group.

Confidence in Working with Students

• Teachers in the high use group had greater confidence in working with students than those in the low use group.

• Teachers in the high use group believed they were successful with more students in teaching the skills they need for working together than teachers in the low use group.

• Teachers in the high use group felt their classrooms did a better job of preparing students to help and encourage each other to succeed than teachers in the moderate use group.

Willingness to Innovate

• Teachers in the high use group expressed a greater willingness to innovate than teachers in the moderate and the low use groups.

• Teachers in the high use group agreed more strongly that staff development is a powerful influence on student achievement than did teachers in the moderate and the low use groups.

In the following questions, responses were in the predicted direction, that the high use groups would respond more positively than the moderate or low use group. However, the differences were not statistically significant at $p < .05$.

Power in the Role of Teacher

- Do you feel you have power in your role as a teacher and can really make a difference with your students?
- How much help do you feel you are able to give students in learning how to learn?

Confidence in Working with Students

- How successful are you in meeting academic needs of your students?
- Are you able to maintain a positive learning climate for your students?

Willingness to Innovate

- How often do you design your own instructional methods and teach your students more or less as you choose?
- How willing are you to attempt changes and innovations in your teaching?
- How motivated do you feel to grow professionally and use information from staff development training?
- Recall a recent situation in which a student had trouble learning. How many techniques did you try in order to "get through" to him or her?

A causal comparative study such as this one is weak in that either variable may cause the other, or a third may be the cause of both. Nevertheless, the findings of this study are substantial enough to warrant further investigation through experimental designs. A more extensive study might involve a sample of 75 teachers from which three groups would be randomly selected. They would receive training in cooperative learning using the staff development model described earlier. However, the groups would be assigned low, moderate, or high use of it in the classroom. Entry level efficacy could be controlled for by administering the questionnaire both at the beginning and at the conclusion of the study. Such an investigation would be feasible in school district settings, and would offer the possibility of confirmation of results found in this exploratory study.

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Appendix A

Background Information
Directions

PART I

Circle the letter of the appropriate response to the following information about you.

---

1. Gender

   A. Female
   B. Male

2. Age (at last birthday)

   A. 20-29
   B. 30-39
   C. 40-49
   D. 50-59
   E. 60+

3. Highest earned academic degree

   A. Bachelor's
   B. Master's
   C. Doctorate

4. Total years in teaching

   A. 0-9
   B. 10-19
   C. 20-29
   D. 30+

4a. Which level have you taught for the last two years?

   A. Primary (grades K-3)
   B. Intermediate (grades 4-6)
   C. Both levels

5. How many graduate level credits have you earned in the past two years, 1987 and 1988?

   A. None
   B. 1-3
   C. 4-6
   D. 7 or more

6. In which of these areas have you had training? Please check YES or NO for each item.

		YES	NO
A.	ITIP	☐	☐
B.	Computer use	☐	☐
C.	Peer coaching	☐	☐
D.	Learning styles	☐	☐
E.	Gifted education	☐	☐
F.	Class management	☐	☐
G.	Cooperative learning	☐	☐

If you marked YES on cooperative learning in question 6, please complete the next section through question 15.

7. How many clock hours of training in cooperative learning have you had in the past two years?

   A. 1-5 hours
   B. 6-10 hours (10 hours is equivalent to 1 credit)
   C. 11-15 hours
   D. 16-20 hours (20 hours is equivalent to 2 credits)
   E. 21-25 hours
   F. 26-30 hours (30 hours is equivalent to 3 credits)

8. Which setting describes how you took most of your training in cooperative learning?

   A. In workshops with no college credit
   B. In classes with college credit

9. Which setting describes where you took most of your training in cooperative learning?

   A. With a team of my school or district colleagues
   B. Not with a team of my school or district colleagues

10. Did your principal take cooperative learning with you?

    A. Yes
    B. No

11. Who were you primarily trained by in cooperative learning?

A. District personnel only
B. Most district personnel
C. Mostly out-of-district personnel
D. All our-of-district personnel

12. In how many lessons per week, on the average, do you use cooperative learning with your students?

A. None
B. In 1-3 lessons per week
C. In 4-6 lessons per week
D. In 7-9 lessons per week
E. In 10 or more lessons per week

13. What kind of training did you receive in the class or workshop where you took most of your training. Check YES or NO for each item.

	YES	NO
A. Were the theories and research that support cooperative learning presented?...	☐	☐
B. Was there modeling and demonstrating of cooperative learning methods by the instructor?.....	☐	☐
C. Were there small group sharing and problem solving sessions for participants?.....	☐	☐
D. As students, did you do cooperative learning activities in the class or workshop?.....	☐	☐
E. Did you receive feedback from a qualified observer as you tried the new techniques in your own classroom?.....	☐	☐

14. How well did your training prepare you to implement cooperative learning in your classroom?

A. Extremely well
B. Very Well
C. Moderately well
D. Only fairly well
E. Not well

15. What opportunities do you use to maintain your skills in cooperative learning? Check YES or NO for each item.

	YES	NO
A. Discussion with colleagues.....	☐	☐
B. Peer coaching and feedback.....	☐	☐
C. Staff meeting discussion.....	☐	☐
D. Principal observation and feedback.....	☐	☐
E. Assistance from staff development personnel.....	☐	☐

Job Satisfaction Survey
Directions

Part II

Please read each item carefully. Note there are five responses below each item. Select the response which most clearly represents your feeling and circle the letter of the response you selected.

---

1. Does your school staff have a sense of camaraderie that increases the quality of your professional life?

   A. Yes, for sure
   B. Generally yes
   C. Sometimes, sometimes no
   D. Generally no
   E. Mostly no

2. How do you feel about this statement: In my school, experienced faculty members accept new and younger members as colleagues.

   A. Strongly agree
   B. Probably agree
   C. Half agree, half disagree
   D. Probably disagree
   E. Strongly disagree

3. How influential do you feel as a part of your school staff?

   A. Very influential
   B. Somewhat influential
   C. Sometimes influential, sometimes not
   D. Slightly influential
   E. Not influential

4. Please estimate: In your class how many students really have a sense of belonging, of feeling included by other students?

   A. All or almost all
   B. Well over half
   C. About half
   D. Less than half
   E. Very few

5. How often do you design your own instructional methods and teach your students more or less as you choose?

   A. All or most of the time
   B. More than half of the time
   C. About half of the time
   D. Less than half of the time
   E. Seldom or never

6. Do you find your contacts with students, for the most part, highly satisfying and rewarding?

   A. Extremely satisfying and rewarding
   B. Mostly satisfying and rewarding
   C. Moderately satisfying and rewarding
   D. Slightly satisfying and rewarding
   E. Not satisfying and rewarding

7. Do you feel emotionally supported by your teaching colleagues?

   A. Yes, greatly supported
   B. Quite supported
   C. Moderately supported
   D. Only somewhat supported
   E. Very little supported

8. Do groups of teachers in your school cooperate with each other to achieve common, professional objectives?

   A. Yes, for sure
   B. Generally yes
   C. Sometimes yes, sometimes no
   D. Generally no
   E. Mostly no

9. As a teacher, do you feel that you are a powerful force in helping students learn and succeed at school?

   A. Yes, for sure
   B. Generally yes
   C. Sometimes yes, sometimes no
   D. Generally no
   E. No

10. How successful are you in meeting the academic needs of your students?

    A. Successful with all or almost all of the students
    B. Successful with more than half of the students
    C. Successful with about half of the students
    D. Successful with less than half of the students
    E. Successful with very few or almost none of the students

11. How willing are you to attempt changes and innovations in your teaching?

    A. Very wiling
    B. Somewhat willing
    C. Moderately wiling
    D. Reluctant, but once in a while
    E. No willing

12. Would you choose teaching again as a career?

    A. Yes, for sure
    B. Probably yes
    C. Maybe yes, maybe no
    D. Probably not
    E. No

13. To what degree is your grade level or teaching team a support group in which you can share concerns and successes?

    A. Very strong support group
    B. Quite supportive
    C. Fairly supportive
    D. Lightly supportive
    E. Not supportive

14. How included do you feel as a part of your school staff?

    A. Very included
    B. Somewhat included
    C. Sometimes included, sometimes not
    D. Somewhat excluded
    E. Excluded

15. Do you feel you have power in your role as a teacher and can really make a difference with your students?

    A. Yes, for sure
    B. Generally yes
    C. Sometimes yes, sometimes no
    D. Generally no
    E. No

16. Are you able to maintain a positive learning climate for your students?

A. Able most of the time
B. Able more than half of the time
C. Able about half of the time
D. Able less than half of the time
E. Seldom or never able

17. How motivated do you feel to grow professionally and use information from staff development training?

A. Great motivation
B. Good motivation
C. Moderate motivation
D. Lack of motivation
E. Great lack of motivation

18. Do you feel successful and competent in your present teaching assignment?

A. Yes, for sure
B. Generally yes
C. Sometimes yes, sometimes no
D. Generally no
E. Mostly no

19. How would you describe the relationships among staff members of your school?

A. Usually positive and constructive
B. Somewhat positive and constructive
C. Sometimes positive and constructive, sometimes not
D. Sometimes negative and destructive
E. Generally negative and destructive

20. How well do the teachers in your school communicate and problem solve?

A. Extremely well
B. Very well
C. Moderately well
D. Only fairly well
E. Not well

21. How much help do you feel you are able to give students in learning how to learn?

A. All the help they need
B. Most of the help they need
C. About half the help they need
D. Little of the help they need
E. Hardly any of the help they need

22. How successful are you in teaching your students the skills they need for working together?

A. Successful with all or almost all of the students
B. Successful with more than half of the students
C. Successful with about half of the students
D. Successful with less than half of the students
E. Successful with very few or almost none of the students

23. Recall a recent situation in which a student had trouble learning. How many techniques did you try in order to "get through" to him or her?

A. Five or more
B. Four
C. Three
D. Two
E. One

24. How do you feel about this statement: The level of cooperation among teachers in this school makes my job more satisfying.

A. Strongly agree
B. Probably agree
C. Half agree, half disagree
D. Probably disagree
E. Strongly disagree

25. How common is it for you to receive help and encouragement in your work from another teacher?

A. Very common, almost daily
B. Quite often, about once a week
C. Occasionally, about monthly
D. Quite rarely, about once per semester
E. Rarely, about once a year

26. How would you describe the opportunity you have to work collaboratively with one or more other teachers in your school?

A. Very adequate opportunity for working together
B. Good opportunity for working together
C. Moderate opportunity for working together
D. Little opportunity for working together
E. Very little opportunity, much isolation

27. How do you feel about this statement: The influence of a student's home experiences can be overcome by good teaching.

A. Strongly agree
B. Probably agree
C. Half agree, half disagree
D. Probably disagree
E. Strongly disagree

28. How well does your classroom prepare students to help and encourage each other to succeed?

A. Extremely well
B. Very well
C. Moderately well
D. Only fairly well
E. Not well

29. How do you feel about this statement: Staff development for teachers is a powerful influence on student achievement, when all factors are considered.

A. Strongly agree
B. Probably agree
C. Half agree, half disagree
D. Probably disagree
E. Strongly disagree

30. All things considered, how satisfied are you about being a teacher?

A. Very satisfied
B. Satisfied
C. Neither satisfied nor dissatisfied
D. Dissatisfied
E. Very dissatisfied